

The magazine of the
Institute of Sound and
Communications Engineers
June 2010

ISCE

certification
sound
testing
resources
communicate
management
quality system

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Introduction from our President

Terry Baldwin *ComplnstSCE*



I trust you are surviving the credit crunch. During my travels to a number of supporting members, I've found a mixture of situations.

Some are saying that they are too busy and

wish they had more time and others perhaps speak the truth!

I am convinced that those companies, who have made profits in the past and put them to good use, rather than trade in their BMW for a Porsche, will indeed survive.

There is, in fact, a great deal of work out there for us all.

We must accept that we don't win them all, but by proving our ability and perhaps wave the ISCE flag to prove recognition, then we should be streets ahead.

I'm always looking for new ideas for our Institute so if you have any, let me know.

On my travels the first thing I ask is "What can ISCE do for you?" Invariably the answer is "Don't know". What a waste. We have the lovely Ros awaiting calls for help. Help comes in many packages, from training at a low level right to the top.

Your council is preparing a full training calendar as well as such help as marketing, understanding L.E.A.N. methods to help improve production or simply sales.

I say simply sales but that of course is no simple matter.

Most engineers are brilliant but all too frequently they are not good sales guys. I just wonder if a few of you/us should get together! We have on our books many talented sales folk, who are not bright at production. Why not combine those resources and instead of two mediocre members we have one that shines and pulls in the orders and fulfil the task with perfection! EASY! Well it's a thought. That's just the sort of thinking we all should be doing if we are to survive.

Keep sending in your thoughts. ♦

Events Diary

9-11 June 2010

InfoComm 10
USA

16-17 June 2010

ABTT 2010
London, UK

10-14 September 2010

IBC2010
The Netherlands

12-15 September 2010

PLASA 2010
London, UK

4-7 October 2010

AES 129
USA

17 November 2010

ISCE Institute Day
Cardiff, UK

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Physics on location

David Bowdley *HonMInstSCE* helps students produce DVD for Spaceguard Centre and learn a range of skills, including recording sound in various acoustic situations

Learning physics in the classroom is one thing, but having to apply that knowledge in a real-world situation with a real deadline and real consequences for failure is something very different. However, this is exactly what a group of students did in December 2009 when they embarked on a project to produce a DVD for the Spaceguard Centre in Wales.

The Spaceguard Centre has been asked by its visitors if there was a book or DVD of the tour. Unfortunately until now, there hasn't been such a thing. However, with the help of a group of sixth form students, the Spaceguard Centre is about to get its first DVD and online video footage for its website.

Rather than hire an expensive film crew to produce the DVD, it seemed like a much better idea (and cheaper) to turn the project in to an educational activity. To do this Jay Tate (Director, Spaceguard UK) and David Bowdley (Education Officer, National Schools' Observatory) decided to recruit a group of students to do the work. To make the experience as realistic as possible, performing arts students were auditioned for the presenting roles, and those who had some experience using theatrical sound and lighting, were assigned roles as technical crew behind the camera. Students were responsible for all aspects of the production. This included a preliminary visit to determine which locations could be lit suitably for the presenters, how to record sound in various acoustic situations, calculate power distribution requirements and organise shooting in to a two day schedule taking in to account the availability of cast and crew.

Jay Tate said: "Although some of the physics is at a fairly basic level for this kind of work, having to apply that in a real-world situation and solving unexpected problems adds considerably to the challenge.



With only one chance to get this right, and no opportunity of returning to re-shoot material, the cast and crew have spent considerable time planning for the filming."

Both cast and crew had to get to grips with the science that the Spaceguard Centre deals with, and a script had to be written. It was essential that the cast researched the science to appear authoritative in front of the camera, and for the technical crew to do the same to enable the organising of the shooting schedule.

The students worked extremely well as a team and used their knowledge to best advantage. The DVD will be available from the Spaceguard Centre, and parts of it will be available on the Spaceguard Centre website (spaceguarduk.com) from Spring 2010.

If you would like to find out more about the production of the DVD, or how a similar project may be of interest to you and your students, please contact david@schoolsobservatory.org.uk ♦

ISCE Pavilion at PLASA 2010

12–15 September 2010, Earls Court

Since its launch in 2007, the pavilion, designed for members of the Institute of Sound and Communications Engineers, and has gone from strength to strength. With its prominent location in Earls Court 1, bookings are expected to grow.

With the benefit of no price increase from last year, the ISCE has also been working on other ideas to make the pavilion even more attractive, such as better branding with colour co-ordinated carpet, signs, and overhead banners. We have also arranged for a seating area within the pavilion for exhibitors to be able to chat more comfortably with their visitors.

More than 300 manufacturers and suppliers of professional audio, lighting, AV, stage engineering and systems integration come to PLASA to meet new customers from over 100 countries.



ISCE Pavilion

ISCE14	ISCE13	ISCE12
4	4	6
ISCE9	ISCE10	ISCE11
4	4	6

ISCE8	ISCE7	ISCE6	ISCE5
6	4	4	6
ISCE1	ISCE2	ISCE3	ISCE4
6	4	4	6

There are three booking options on offer within the ISCE Pavilion

Option 1 We are offering a stand 2 metre frontage x 2 metre depth = 4 square metres, the cost to ISCE members would be £1,520.00 plus VAT (a £250 saving).

Option 2 For those companies who may want a slightly bigger space to accommodate a pop-up display, we are also offering a stand 3 metre frontage x 2 metre depth = 6 square metres and the cost to ISCE members is £1,750.00 plus VAT (a £740 saving).

Both packages include shell scheme panels around the stand with the company names printed on a sign above. The build height can be a maximum of 2.5 metres. It also includes lighting, electrics and furniture (which could otherwise work out approximately £250 on top).

Option 3 We have arranged for a 2 x 2m stand containing literature racks for you to display your company brochures. For £150.00* plus VAT, your company literature can be displayed on the rack and stocks overseen and replenished by ISCE. This is an ideal solution for companies who want a presence at the exhibition, but are not able to take a stand.

If you would like to book a stand or literature space email ros@isce.org.uk

* The figure quoted is based on ten companies taking up the option. This price may vary according to the number of companies booking literature space.

What's stopping you from winning contracts?

Doug Edworthy *HonFlnstSCE*

- **Do you look through tender documents and then throw them in the bin when you get to the part that asks you for details of your quality management system?**
- **Do you avoid contracts asking for ISO 9001-certificated suppliers?**
- **Afraid that it's too complicated or expensive to get your management systems in place and get them certificated?**

You shouldn't be.

It isn't very complicated. You run a successful organisation, don't you? So you must be doing something right. You probably have much of what ISO 9001 wants in place already, and it wouldn't take much to draw it all together into a coherent and workable quality management system. After all, quality management is just the systematic application of good common business sense.

And if you don't feel your organisation is as successful as it should be, then taking a considered look at your business and the way it's managed could be just what you need to get things back on track.

It doesn't have to be expensive. A properly constructed quality management system is a tool for making your business more successful by consistently satisfying your customers in a profitable way.

Very few worthwhile things in life are free, and a management system is no exception. But the time and money spent on a quality management system is an investment that, properly used, will more than repay its cost in the longer term by making your organisation more efficient and attracting new business.

One of the biggest obstacles to be overcome for many people is simply understanding 'quality-ese'. You thought Chinese Mandarin was obscure – think again!



For example: Corrective Action. First, dispel those thoughts of whips and strict women in thigh-length boots and fish-net stockings. It's much more mundane, and useful than that. It is all about how your organisation:

- knows when something significant has gone wrong
- makes sure it really understands why it went wrong
- takes steps to solve the immediate problem (perhaps placating a cross customer) and, importantly
- takes steps to remove the root cause of the problem to stop it from happening again.

It's just the sort of thing you'd want to do anyway, isn't it?

There's nothing worse than a problem that keeps on coming up from behind you and biting you, and Corrective Action is the tool you can use to be sure you've got rid of it. The cost of a significant problem that happens more than once far outweighs the cost of Corrective Action. You might even have enough spare cash for a second pair of thigh-length boots.

Another example: Internal Audit. No, nothing to do with auditors in grey suits poring over your financial records. Instead, this is all about how you, as a manager of your business, get a view on how well the management system is helping your organisation meet its business objectives and identifying

previously unnoticed ways of making it work even better. Modern quality auditing isn't a policing exercise. On the contrary; a good, well-trained internal auditor becomes a sort of internal quality consultant; there to help people get the best out of themselves and the management system and to provide a snapshot of the effectiveness of the management system for management's benefit.

"But I'd drown in paperwork!" I hear you wail. Not unless you really want to. ISO 9001 requires you to have only 6 written procedures and a quality manual, plus any other documents you feel are necessary to run your business. Einstein had the right idea; 'Everything should be as simple as possible, and no simpler' – this is exactly how management systems should be approached. Entire quality management systems for simple businesses have covered just the two sides of a piece of A4 paper. Yours needn't be much bigger.

If you approach quality management from the point of view "I want a quality management system to help me make my business more successful" then you are more likely to end up with a cost-effective system that really motivates you, your staff and, ultimately, your customers. If your approach is "I want the certificate so I can tender for more business" then you will end up with an expensive grudge-purchase that becomes a mill-stone around the neck of your organisation.



Just a few words about certification organisations: In the UK they come in two flavours; UKAS-accredited and the others. Because UKAS is the government-sponsored regulatory body for certification organisations, its 'tick and crown' logo on a certificate is a

guarantee of impartiality and consistently high standards of assessment. If a certificate does not carry the UKAS logo there is absolutely no such guarantee – despite what the certification organisation might tell you. In fact, most large organisations and government bodies will only accept UKAS-accredited certificates. The others aren't considered to be worth the paper they are written on.

Beware, particularly, of organisations offering to sell you a management system and the certificate. By definition there can be no impartiality of assessment, and a 'cheap' management system is just that – cheap. It almost certainly doesn't reflect the way you do business, rather you may have to adapt your business to fit their management system. Yuk!

To keep costs to the minimum, the ISCE will soon be running a series of workshops on implementing ISO 9001. Each workshop will provide you with knowledge and skills that lead you towards the eventual goal of being assessed and certificated to ISO 9001. Between the monthly workshops participants will use their new skills to build, stage by stage, their management systems that are tailored to their own organisations – no one-size-fits-all here!

In addition to the formal workshops, there is help and advice available by e-mail from an experienced practitioner who's seen it and done it all themselves – no consultants from ivory towers here either!

Go on, do your business a favour, and get that quality management toolbox working for you! ♦

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ISCEx2010



“ISCEx2010 proved to be a real success with more exhibitors and visitors than before. It had a real buzz and captured my interest for the whole day. The content and quality of the lectures were very good offering something for everyone. With some of the larger shows losing favour with many exhibitors it was great to see so many Companies represented at the show. It was a real treat to meet up with so many people and continue to build relationships for the future. Thank you to all those hard working individuals who made the day such a success.”



Peter Alberry-King, Penton UK Ltd

“What a day! I thought this year’s exhibition was probably the very best yet. There was a full house regarding seminars and an excellent number of casual visitors. Well done to Ros Wigmore for organising the event and to the many exhibitors without whom it wouldn’t have been the same.”

Terry Baldwin, President of ISCE





“This year’s exhibition was Voice Perfect’s first with the ISCE. We were pleasantly surprised by the friendly and relaxed environment that they created which allowed us to demonstrate our new products to interested members. We met many friends, old and new and hope to have at least re-established contacts and leads, if not made some new ones!”

Nicky Spiers, Voice Perfect Ltd



“ISCEx2010 was a sheer delight to attend. We were particularly impressed by the professional and friendly way that the event was organised and run, and also by the quality of the seminars. I am immensely pleased by the number of new contacts and potential customers that we met on the stand and look forward to working with them on projects in the near future. This is certainly an event that Ampetronic would be happy to support next year.”

Simon Pinder-Hales, Ampetronic Ltd



“This was the second ISCEx show for Neutrik and was very successful. We had lots of interest in both the NTi XL2 - next generation Acoustical Sound Analyzer and the Neutrik opticalCON – the most cost effective tactical fibre solution. A great show.”

Charlie Cook, Neutrik UK Ltd

Institute Day 17 November 2010

We have a really special day planned for you when the ISCE host their annual Institute Day at the prestigious St. David's Hotel in Cardiff this year.

We are delighted that Peter Mapp has accepted our invitation to present the Warren-Barnett memorial lecture. The lecture is already shaping up to be something special. Its title 'Thinking outside the box' could be construed in a number of ways and in Peter's hands it probably will be!

After the formalities of the AGM, ISCE members can walk to the Millennium Centre for the Institute of Acoustic's RS 2010 workshop.

The day will be rounded off with a dinner and an evening of fun and laughter which will be dedicated to the memory of the late Antony David Hopkins. With Dai Vaughan as our MC and an open mic for you to share your anecdotes, there will be every opportunity to do your party piece.

There will be options to book individual places or sponsor tables of eight. We hope the evening will raise some funds for David's favourite charity, the Beechwood Cancer Care Centre.

You will receive an invitation over the coming months with all the details and negotiated hotel rates, but we wanted you to make a note in your diaries so you won't miss this unique and special event. ♦



Date

17 November 2010

Venue

The Roald Dahl Suite,
St. David's Hotel, Cardiff

Times

2.30–3.30pm Hot topic discussion

4.00–5.00pm Warren-Barnett Memorial Lecture

Presented by Peter Mapp FlntSCE

Thinking outside the box

5.00–6.00pm AGM

6.30–7.00pm IOA RS 2010 workshop

7.30–8.00pm Drinks Reception

8.00pm Dinner

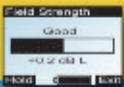
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Ticking all the boxes

Lisa Sharp, Gordon Morris

Understanding the complexities of equipment for the hearing impaired is of real importance – providing a system that works for the hearing aid user doesn't just allow for a compliance box to be ticked, but ensures that the service that the local authority offers is inclusive and accessible for all. If a sufficient and effective hearing system is not initially supplied or installed, it is likely that a local authority will incur additional costs replacing it with a system that meets the building specification.

With state-of-the-art loop systems and other personal assistive equipment now available, it is paramount for local authorities to be aware of these developments and ensure the correct systems are provided.

The Disability Discrimination Act states that reasonable adjustments must be made to accommodate the needs of people with disabilities. Although we are all aware of this legislation we

do not always think about the needs of people with hidden disabilities such as hearing impairment. This is, of course, covered by the DDA and failure to comply with this legal obligation could result in hefty fines and prosecution.

Sedgemoor District Council needed an induction loop or a hearing system for both public and staff use in their newly refurbished office building and in particular a large meeting room. The loop system had to be in line and compliant with both the DDA, The code of practice for audio-frequency induction loop systems (AFILS) and the international standard IEC 60118-4. The specialist sound engineers from Gordon Morris Ltd advised on the different types of induction loops that were suitable for Sedgemoor District Council and they later opted for the UniVox Super Loop System that had been produced specifically for use in professional environments. Manufactured by Swedish company Bo Edin AB, which is renowned

for its high quality audio equipment, the SLS loop has many advantages over older and conventional loops.

The simplicity of the system, meant that Sedgemoor DC was able to plan and install the system quickly and within the budget set. Due to the design and construction of the building combined with the poor acoustics, the SLS system allowed the installation team to focus the magnetic field to required areas, ensuring there is virtually no vertical or horizontal overspill or no 'middle drop' caused by the reinforced concrete and metal steel work that is commonly found in modern buildings. ♦



Sound system test, alignment, and certification part 1

Steve Jones *FInstSCE*

Introduction

This engineering note describes the manner in which a sound system contractor should deliver a fully functional sound system as designed and specified. Whilst its origin is a method statement for a contractor on a very large project, the principles remain the same for virtually any size of system. Equally, it has been written on the basis of using DSP based systems, but the principles are just as valid for analogue or hybrid technology systems.

Environmental noise

Where a sound system is likely to affect local residents due to its capability to generate high sound pressure levels in the surrounding area, the client should issue a statement to the local residents and to the local authority to say that alignment and testing will only take place up to 21:00 hrs and will not start before 10:00 on Sundays. It is very important that all concerned abide by this as far as possible. If the residents are sensitised, it will impede your effort considerably at the most critical time in the project.

In general, one should ensure that sound is only sent to the area under inspection and not indiscriminately. Sound engineers are experienced professionals and they should respect others and their need to communicate and concentrate on their work. In turn, sound engineers want quiet for their tests, and for other trades to respect their working environment.

It is important to start the project advising the client, as well as the construction management, that when it does come time to align and measure the system, that those measurements cannot be contaminated with extraneous noise, be it hammers or voices. This message will doubtless need to be repeated more often as the end becomes more in sight. After all, environmental noise is a two-way affair.

Sources for tests

Whether considering local residents or others working on site, the use of music as a test source is, at first, quite a change from the usual banging and crashing of a building site. However, it soon becomes a nuisance in terms of the quality, level or genre of music, and it is at this point that the sound engineer starts to alienate themselves from the community.

On the other hand, steady state noise is less disruptive to the community. Nevertheless sound engineers should limit the exposure to the community, as far as possible, so as to have the best chance of full cooperation when the time comes to do full power testing over long periods.

The source for the alignment process is not music.

It is either:

- pink noise
- chirp / drum click
- STIPA noise.

When the systems are finally aligned, there will be a subjective test using speech and/or music as a source.

Human resources

Since sound is usually a 'final finish' trade the sound contractor is the one who gets left with insufficient time to complete their work, and usually end up working long and unsociable hours to enable the inevitable 'opening ceremony' to take place. The correct team in the right quantity with the requisite experience will succeed where others fail.

Sound systems in the context used here are, by their very nature, systems distributed over quite large and sometimes huge spaces. It is therefore usual to have one 'sound engineer' who is in the acoustic space and another 'systems engineer' who is located with the control equipment.

Sound engineer

This should be a person who knows how to use meters and, especially in the case of intelligibility measurements, also knows the science behind the technology, so that notes can be made for any post processing which may be necessary. The sound engineer should have been trained to listen. By this it is meant that this person is not hearing just the sound, but the parameters of that sound. When a sound is distorted, is it distorted in the frequency, level, or time domain, or a combination of these? The sound engineer should know from experience.

It is quite usual for the sound engineer not to have been involved in the installation itself. It is likely, though not strictly necessary, for the sound engineer to have been involved in the systems design process.

Systems engineer

The systems engineer is often the person who has been responsible for the overall build of the system, and especially any programming of the DSP. It is for this reason that they would know their way around the controls available and the structure of the system to an intimate degree.

Their knowledge of the installation is such that if the sound engineer reports that a particular loudspeaker is not working, the systems engineer knows which amplifier, in which rack, in which equipment room is the likely suspect. If the sound engineer asks for a particular loudspeaker to have 50mS of delay more than the next, the systems engineer knows which virtual device controls each and where they are located within the control screens.

Disclaimer

Care is taken to determine that 'Engineering Notes' do not refer to any copyrighted or patented circuit or technique, but ISCE can accept no responsibility in this connection. Users of the information in an 'Engineering Note' must satisfy themselves that they do not infringe any Intellectual Property Rights.

Support engineers

During a testing and commissioning process, there are bound to be mistakes which come to light and which need to be rectified.

Support engineers are usually the people who carried out the physical installation of the loudspeakers and/or the amplifiers and the termination of same. They are therefore familiar with the site and know the system installation quite intimately. When something occurs which needs checking or rectifying, the systems engineer can trust them with the responsibility of investigating and taking whatever action is necessary to correct matters, or at least report back with a coherent explanation of their findings.

When testing and commissioning a system, the sound and systems engineers can usually move on to another part of the system test programme while a fault is being sorted out by a support engineer, thus saving precious time. This is the key role which support engineers play. ♦



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LEADING THE WAY TO SAFETY

What is a Member?

John Woodgate *FlintSCE*

Council is very keen to persuade as many Technicians as possible to try for Member grade, because it is pretty sure that a high percentage would qualify. There are basically two routes; submit a technical report or attend an interview. It was encouraging to have a record number of candidates for interview at ISCEEx2010. Technicians who have an HNC or equivalent, ten years experience in the industry, including their time working for that qualification, and have people reporting to them, are particularly encouraged to apply by one of those routes.

So, what is a Member, that a Technician isn't? It isn't a matter of technical skill; some senior Technicians can probably run technical rings round some Members, although of course a Member must be technically competent. But a Member must have additional competences. It seems likely that many Technicians have never thought about this, not even when applying for an upgrade. And some will have been using Member-type skills and doing Member-type activities without realising it.

Lists are always suspect; either too short or too long, but a list that helps to define a Member might be:

- technically competent in the relevant field of activity
- able to manage subordinates so as to get the best from them (not applicable of course to self-employed people without employees; in their case, able to remain in business for several years is an appropriate substitute)
- able to hold their own in face of pressure from business associates, notably clients, electrical contractors and architects
- be an ambassador for the company and the Institute, and uphold the Institute principles.

There is no reason why candidates for interview should have to wait for another ISCEEx to come around. If we have, say, five applicants, we can arrange interviews at one of our usual venues, but also possibly at other venues, depending on where the candidates are based. We have had successful events at more northerly places, and if you would like to suggest a place where you are sure we would get a good response, please tell Ros. ♦

Supporting Members

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www.soundplayback.com
Mr A Barns *MinstSCE*

ADS Worldwide, Manchester
www.ads-worldwide.com
Mr J Houldcroft *MinstSCE*

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www.akwilav.com
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Alarm & Communication Systems Ltd, Tyne & Wear
www.alarmcommsys.co.uk
Mr S Jefferson

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www.arup.com/acoustics
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